REMARKS

Claims 1-6, 8-51, 53-57 and 59 are pending. Claims 1-6, 8-51, 53-57 and 59 are rejected. Claims 1, 6, 8, 9, 11, 12, 14-18, 20, 23, 24, 35 and 59 are amended. Claim 5 is cancelled, without prejudice. This Response is filed in reply to the Final Office Action dated September 16, 2004.

Amendments to the claims are not an acquiescence to any of the rejections. Furthermore, silence with regard to any of the Examiner's rejections is not an acquiescence to such rejections. Specifically, silence with regard to Examiner's rejection of a dependent claim, when such claim depends from an independent claim that Applicants consider allowable for reasons provided herein, is not an acquiescence to such rejection of the dependent claim(s), but rather a recognition by Applicants that such previously lodged rejection is moot based on Applicants' remarks and/or amendments relative to the independent claims (that Applicants consider allowable) from which the dependent claim(s) depends. Applicants reserve the option to further prosecute the same or similar claims in the instant or a subsequent application. Upon entry of the Amendment, claims 1-4, 6, 8-51, 53-57 and 59 are pending in the present application.

With respect to the Final Office Action dated September 16, 2004, Applicants provide the following comments. Applicants have amended claims 6, 12, 20 and 23 as suggested by the Examiner to correct the informalities noted by the Examiner.

With respect to the rejections of the claims, Applicants traverse the Examiner's rejections under 35 U.S.C. §103(a), and respectfully requests reconsideration in view of the amendments and remarks. Applicants' independent claims 1, 8 and 35 have been amended to clearly indicate that the apparatus of the present invention simultaneously images the scene by two, first and second imaging units along a common optical axis. The claims have also been amended to indicate that the SBUV(240-280NM) and the visual images are so

combined that the UV emittance is registered and displayed in its exact position within the background scenery with no parallax.

In pages 3 and 4 of the Final Office Action, when referring to claim 8, the Examiner states that the system of Dirscherl includes at least the items (a), (b, b1, b2), and (c) of claim 8. Applicants assert that this is incorrect, and that Dirscherl does not disclose and cannot have in his structure a multi-spectral system that includes at least a SBUV (240-280NM) imaging unit (i.e., a unit which is solar blind). As is known to those of skill in the art of detecting radiation in the SBUV (240-280NM) range, in order to detect radiation in the solar blind range with a photocathode tube, a solar blind filter has to used in conjunction with a photocathode such as RbTe or CsTe that is sensitive to the UV light only and is appropriate for detection in the SBUV 240-280NM spectral band. Those who are experienced in UV solar blind detection know that there is no such filter that enables a wide range photocathode of 200nm to 850nm (as in Dirscherl multi spectral system - see column 11 lines 1-3), to be blind to the solar radiation at daytime outdoor illumination. In use of a wide band photocathode 200nm to 850nm the filter transmission in the visible range should be suppressed to as low as 10^{-16} to 10^{-17} of the original value or more, while only suppression to 10^{-12} transmission is required with the RbTe or CsTe photocathodes. Those who are skilled in the art know that a filter having reasonable transmission in the solar blind range, while having as high as 10^{-12} suppression in the visible range, is achievable with presently known filter materials, while similar filters having suppression of as high as 10^{-16} to 10^{-17} are not achievable.

Dirscherl discloses two embodiments (Fig. 7 and Fig. 11). In both said embodiments only **one** photocathode is used, and said single photocathode is used to detect radiation in all three ranges (UV, IR, and VIS). A support for this can be found, for example, in column 6, lines 1-3: "*The sensor 5 of FIG. 7 has a photo-cathode 50 as the photo-sensitive part, for example type S20, sensitive from approximately 200 nm to 850 nm*". Dirscherl is aware of this fact and also discusses the possibilities that either a photocathode that is limited to the

UV band, or alternatively a photocathode that covers the expanded, multi spectral range (as above) can be used, for example, in col. 9, line 17+:

> *The recognition system of the invention can be used not only in the ultraviolet, but also in the visible range, and in the infrared near to this spectral range (200 nm to approximately 1000 nm). In this variation of the invention, the above described photo cathode 50 is replaced by another one which is sensitive in the desired expanded spectral range, for example bi-alkali, S20, GaAs cathodes may be used. In this manner, the recognition system of the invention becomes a multi- spectral sensor. By means of a filter disk with appropriate filters arranged in front of the photo-cathode and mechanically put into rotating motion, the specially desired spectral ranges may be simply preselected".*

In col. 11 lines 46 to 52, a unified lens is described with slopes made of different selective filter layers, depending upon which spectral range is desired. If the single photocathode of Dirscherl is selected to be limited to the UV band, it can indeed operate in conjunction with a SBUV (240-280NM) filter, therefore can function as a SBUV (240-280NM) imaging unit. However, in that case it cannot operate as a multi spectral system and cannot detect in the IR and in the visible bands. If, alternatively, the photocathode is selected to operate in the expanded band as in the embodiments of Figs. 7 and 11, the system can be multi-spectral and it can detect in the UV, IR, and VIS, but it cannot include a solar blind imaging unit (that as said requires a photocathode that is limited to the UV band). Therefore, there is no way by which the system of Dirscherl can operate as a multi-spectral system that includes a first SBUV(240-280NM) imaging unit and an additional imaging unit as in claims 1, 8, and 35 of the present invention. Therefore, Applicants believe that the present invention is novel and inventive with respect to Dirscherl, even for this reason alone.

In fact, by having only one photocathode Dirscherl has only one imaging unit with only one unified optics with different filter coatings, and does not have two separate imaging units in the sense of claims 1, 8, and 35 of the present invention. This is still another significant difference between the present invention and Dirscherl.

On page 4 of the Office Action the Examiner also states that the apparatus of Dirscherl comprises:

> *(d) combining means for receiving the first visible image from the SBUV imaging unit and the second visible image from the visible imaging unit, and combining by overlaying said first visible image over said second visible image thereby producing one combined visual image (I, II III, of 13 in Fig. 12, column 11, lines 7-17.)*

As explained in detail in Applicants' response of June 23, 2004, Applicants believe that this fact is also incorrect, as the apparatus of Dirscherl does not comprise two imaging units and does not comprise any combining means of the two imaging units, and obviously it does not comprise any overlaying means as included in said item (d) of claim 8. In fact, Dirscherl teaches away from the present invention by displaying the UV, the IR, and the visible images separately on a display. Though applicable here, for the sake of brevity Applicants will not repeat all the arguments as provided in the previous response. The Examiner is referred to said previous response (page 12 fourth paragraph to page 14 first paragraph) for more details. Thus, Applicants believe that at least for the reasons stated above, the Dirscherl publication is irrelevant to the inventiveness of the present invention.

The Examiner further states in the Office Action that:

> *Norris teaches (column 3, line 66 to column 4, line 63) a combined visual image showing the UV emittance in its exact position within the background scenery is produced by overlaying (i.e., superimposing) a first visible image representing received UV radiation over a real scene visible image, in order to aid the vision of the operator (i.e., a vision aid application). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to superimpose the first and second visible images in the apparatus of Dirscherl et al. in a vision aid application, in order to aid the vision of the operator.*

The system of Norris is aimed for providing the location in space of relevant UV emitting objects such as aircrafts or runaway lights in foggy conditions. According to Norris, the UV rays are less attenuated then visible rays in low visibility atmospheres, thus

enabling the location of the objects or runways otherwise not observed. Norris applies for this purpose a UV receiver 130. According to Norris, the receiver has a solar blind UV (SBUV) imager which produces an image of the UV lights, UV beacons or reflectors.

The Examiner further states that Norris teaches (col. 3, line 66 to col. 4 line 63) the combination of a visual image showing the UV emittance in its exact position within the background scenery. Applicants believe that this is also incorrect. According to Norris (col. 8, lines 28-32), the display is either :

> *... a transparent head-up display, helmet-mounted sight, visor, or a device that displays the image or representation* ***on a medium interposed between the operator's eye and his view of the actual, related scene.*** *Alternatively, the image can be displayed on a monitor or integrated with the display of another sensor, such as a radar display.*

More particularly, the system of Norris does not have two optical imaging units as in claims 1 and 8 and 35 of the present invention. It comprises only **one** optical imaging unit that produces only the UV image, which is then displayed on a transparent display, through which the observer views the natural visible image. Therefore, the "combining" of the SBUV and visible of Norris is totally different then the combining which is performed in the present invention. In fact, as the system of Norris is targeted for use in foggy conditions, there is no sense at all of acquiring a visible (foggy) image, and the system of Norris indeed does not comprise a visible imaging unit (See Figs. 1 and 5). This is a very significant difference between the system of Norris and the system of the present invention which comprises two imaging units.

Furthermore, according to amended claims 1 and 8 and 35, the UV and the visible images (claims 1 and 8) or UV and infrared images (claim 35) are acquired through a common optical axis. Such a structure eliminates parallax. The system of Norris, not only lacks a visible imaging unit as stated above, it obviously may involve parallax, as the natural, visible optical axis of the observer (such as the pilot wearing the helmet-mounted head-up display) of Norris cannot overlap the optical axis of the UV imaging unit (receiver

130). This is still another significant difference between the system of Norris and claims 1 and 8 and 35 of the present invention.

As said, Dirscherl teaches away from the present invention, by not enabling a multispectral system that includes at least a SBUV (240-280NM) imaging unit, and by suggesting a separate display of the UV, IR, and visible images. Norris, on the other hand, although suggesting some type of combination between the SBUV image and the visible view, it obviously lacks any disclosure for two, SBUV and visible or infrared imaging units. Therefore, Norris also lacks disclosure relating to the acquiring of the UV and visible images along a common optical axis as in the present invention. Therefore, Applicants believe that someone who reads Dirscherl (who clearly teaches away from the present invention) will not find in it any motivation for combining it with the system of Norris. But even if someone for some surprising reason will combine between said two systems, he will still be far from obtaining the system of the present invention.

The Examiner has rejected all the dependent claims as being unpatentable over Dirscherl, or for being unpatentable over Dirscherl in view of one or more of the following references: Filopovich (US 5,079,416), Baril (US 5,535,053), Palmer (US 5,687,034), and Hartemann (US 4,835,391). None of these latter references is more relevant to the independent claims than Dirscherl is in view of Norris, as none of them discusses overlaying of two different spectrum images, observed simultaneously from the same line of sight. In view of the amendments to the claims, and the explanations above with respect to the independent claims, Applicants believe that the Examiner's observations with respect to the dependent claims are now moot.

Based on the above amendments and remarks, independent claims 1, 8 and 35 are patentable over Dirscherl, alone or in combination with Norris, Filopovich, Baril, Palmer, and/or Hartemann and allowance of the claims is respectfully requested. Claims 2-4, 6, 9-34, 36-51, 53-57 and 59 depend respectively from claims 1, 8 and 35 and are allowable at least be dependency. It is respectfully suggested that the amendments place the application in condition for allowance. Alternatively, the amendments place the application in better

form for appeal by materially reducing or simplifying the issues for appeal. Thus, it is respectfully requested that the amendments be entered.

CONCLUSION

Based on the above amendments and remarks, it is respectfully submitted that the claims and thus this application are in condition for allowance. Accordingly, allowance is requested. If there are any remaining issues or the Examiner believes that a telephone conversation with Applicants' attorney would be helpful in expediting the prosecution of this application, the Examiner is invited to call the undersigned at (617) 832-1175.

Respectfully submitted,

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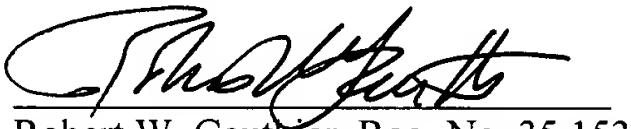

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